

Pending and Potential Changes for High-Level Waste Form Repository Requirements

Denis J. Koutsandreas

Office of Program Integration, EM-22

April 22, 2002

ISSUE DRIVERS

- WASRD Rev. 4 issued electronically in January 2002. Several former HLW specifications deleted or modified.
- Revise EM-WAPS to conform to WASRD Rev 4 by approximately September 2002. RW intends to make the WASRD list 10CFR63 performance based specs
- Independently reviewing CFRs/other rules/regs to recommend eliminating or decreasing unnecessary requirements.
 - Some current WAPS waste form engineering specs may still be needed to meet overall repository performance (e.g. borosilicate waste glass less than 400 °C)
 - EM will (attempt to) delete or liberalize as many waste form specs as allowed in WASRD Rev. 4
 - EM/RW may pursue separate waste product specifications for each separate distinct HLW form.

ISSUE DRIVERS CONT.

- EM Top-Bottom Review recommended changes to reduce treatment/LCC ahead of existing schedules and baselines. EM-1 challenged EM HLW complex to think “outside” the existing framework and look at all alternatives.

Potential Changes

- Alternate HLW Forms
 - General HLW form requirement for a solid material that is not pyrophoric, contains little or no organics, and does not cause corrosion in/on the RW Waste Package
 - Less stringent requirements for existing Borosilicate waste glass (e.g. no PCT requirement)
 - Other HLW glasses
 - Silicates - alkali-alumino borosilicate, alkali-aluminosilicate
 - Phosphates - Iron & Iron Lead
 - Crystalline - SYNROC, Titanate
 - Calcine
 - PuO₂ in DOE-STD-3013 cans
 - NE's Electrometallurgical (EMT) hybrid glass/ceramic

Other Key Issues

- RW revising the Comprehensive SNF & HLW MOA to change all shipping cask responsibilities to RW; and
- EM has revised a set of HLW processing threshold points to denote what contractor or DOE authority approval level is necessary for resolving nonconforming HLW canister actions plans (i.e HLW that doesn't meet the WAPS.) and level of authority needed for revision to or creation of baseline waste acceptance documents.